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Procedia - Social and Behavioral Sciences 79 (2013) 127 – 140

Procedia
Social and Behavioral Sciences

9th Conference on Applications of Social Network Analysis (ASNA)

Management of Participation Practice: Reconstruction of Lithuania's Formal Policy Networks by Means of Social Network Analysis

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Abstract

The present research aims to evaluate whether a policy making environment with an integrated network paradigm exists at the government's operational policy level and to determine barriers that impede management of participatory practice. The research is based on case studies of participatory decision-making groups that operated under the Ministry of Education and Science of Lithuania in 2007 and 2010. Assuming that these groups constitute segments of wider policy networks, the research methodology incorporates a social network analysis. Empirical studies exhibit a low level of interest representation and a high willingness of public administrators to acquire expertise.

Selection and/or peer-review under responsibility of Dr. Manuel Fischer

Keywords: policy network, policy actors, social network analysis, Lithuania

1. Introduction

Public participation as an approach to making political decisions refers to an attribute of democracy known as "institutional design of partnership governance" (Munro et al., 2008). This paradigm makes an emphasis on the process of decision making that is conceptualized via interaction of policy actors who represent their own stakes. Public participation is the factor that converts the process of governing into the process of governance where a network is recognised as a clear construct that helps to interpret new tendencies in management of wider participation with an actual impact upon policies. Naturally conceptualised stakes tend to form spontaneous fragmented networks beyond the policy framework and the fragments of such networks may have an impact on

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Selection and/or peer-review under responsibility of Dr. Manuel Fischer
doi:10.1016/j.sbspro.2013.05.061

policy formation and state regulation afterwards. The actual practice of policy formation inevitably triggers networks of external stakeholders and tends to change into a flexible structure that recognises the value added of the knowledge that the networks generate and acquire at the moment when a policy decision is made. Seeking to depolarize new trends of spontaneous policy networking with an existing hierarchical institutional structure and find out a renewed role of democratic representatives, the concept of meta-governance has been introduced (Meuleman, 2011). However, operationalization of this concept is out of the scope of scholars' interest. The way policy networks contribute to policy making strongly depends on the policy making practice and the policy framework. One of the formal manifestations of a policy network has an expression of participatory groups that are temporary created with a particular purpose. Participatory attitudes towards policy actors in such groups motivate policy administrators to invite stakeholders who have either clearly comprehensible stakes or expertise in corresponding issues. The actual distribution of participation in policy networks and the pattern of participation could be traceable only when the policy network structure is reconstructed. However, empirical data about participation on the operational policy level and about the practice of the groups are scarce. There is no clear understanding of the exact value added those groups could contribute to the policy making.

The present research seeks to evaluate whether the policy making environment that integrates the network paradigm is created at the government's operational policy level and to determine barriers that impede development of participatory policy. We hypothesize that social network analysis of formal policy networks may let us independently tackle the participation practice without concealing it under declarations, opinions or confronting attitudes of policy makers and other participants.

The research is based on case studies of participatory decision-making groups, consensus-building groups, workshops, advisory committees and controlling boards employed by the Ministry of Education and Science of Lithuania (Ministry) during 2007 and 2010. The main research questions are the following: (i) what kind of practice of interaction participatory groups in Ministry represent if the network like interaction has a positive impact on policy making; (ii) who the main policy actors in the policy network are and what role they have; and (iii) how the stable policy network structure is.

The particular policy domain of education has been intentionally selected. The education policy domain typically is socially sensitive and to some extent "interest free". The premise of "interest free" comes out of the meaning of the wording of stakeholder, however the recognition of stakeholder is not self-evident for education policy domain. A teacher or scientist is both a policy expert and a stakeholder at the same time. Therefore the distinction between interest representation and possible manipulation of representation takes additional efforts since operational participatory decision making is hard to trace using only traditional research methods.

2. Networks for policy

Networks as an organisational structure

The paradigm of policy management and government went a long way of transformation from one actor management to multi government and governance in networks. Although there is still no clear understanding „whether policy networks are to be considered as a metaphor, a method or a proper theory with explanatory power" (Besussi, 2006), networks as a paradigm applied for policy analysis and modelling let us have an insight into the complex nature of the processes of interaction, cooperation or confrontation in policy formation.

Networks as an organisational structure can be represented by a low hierarchy and can overcome constrains of policy development related to actors' motivation and responsibility shared outside the hierarchical structure. The changes in governmental mission rest on the fundamentals of network management (O'Toole, 1997). Academic scholars have proved that networks give a rational response to emerging social problems via "the non-hierarchical and interdependent nature linking a variety of actors, who share common interests with regard to a policy and who exchange resources to pursue these shared interests acknowledging that co-operation is the best way to achieve goals" (Börzel, 1998). The non-hierarchical nature of the networks lets a single policy actor to act in a coherent manner, equally sharing knowledge and responsibility with other network participants.

Reviews of scientific literature on policy networks and their attributes encourage us to focus on meta-governance, network governance and interactive policy making (Klijn, 2011) paradigms. All these approaches have an element of networking of different policy actors. The need to distinguish between different types of networks (policy networks from collaboration networks or action networks with governance networks (Agranoff, 2006) is still relevant. The understanding of policy networks as a combination of actors with different institutional affiliations including the government, policy implementation agencies and interest groups has changed into the concepts of collaborative networks, where public services are provided by the private sector as a policy implementer and governance networks, where actors of policy formation and implementation are integrated in networks of a wider scale for the purpose of sustainable policy development. The most common interpretation of policy networks is based on a network-like interaction between different organisations (public authorities, public agencies, businesses, nongovernmental sector representation, interest groups) with the interest in a particular policy decision (Rethemeyer & Hatmaker, 2008).

Coping with some barriers that traditional policy making is facing, policy networks contribute to a wide range of scientific works on participatory democracy and on participatory policy building (Barber, 2004). Having combined the approach of social networks with the policy analysis, the following attributes can be listed as the advantages that manageable policy networks suggest: creating additional trust among parties, minimising confrontation emerging from unmanageable stake competition, making environment for consensus building, evoking commitments towards consensually agreed goals and aligning efforts of persuasion. Two trends of research may be distinguished: research in how to measure a policy network structure and research in how to manage policy networks by making coherent policy decisions. In the context of the first trend, a social network analysis is relevant. As for the second one, different methods, such as "formal network decision models" (Knoke, 2011), have been developed. Knoke (2011) lists the following models: social influence models, collective action models, network access models, dynamics policy models and dynamic access models.

Formal vs. informal networks

An analysis of a formal network produces a body of knowledge about the particular impact of a policy making organisation on the policy formation (Knoke, 2011). Not surprisingly, there are evidences that formal relations have a direct impact on communication behaviour and influence knowledge flows (Christopoulos & Ingold, 2011). Actually, the data collected from a formal network represent single sided information mostly about the network which is recognisable by authorised policy makers who remain outside any pattern of an informal network. An additional part of information about an informal network requires employment of other methods of data collection. It has to be acknowledged that an informal network structure could be tracked most successfully during the collection of qualitative data employing an "open procedure" with less structural methods aimed to capture the multi-dimensional nature of a policy network (Oberg & Walgenbach , 2008). However, an informal network analysis based on the qualitative data collection methods contains more uncertainties than the reconstruction of a formal network. One source of such uncertainties is the dynamics of network evolution. To measure the dynamics, one needs to have information about presently existing ties and the lifetime of such ties. The awareness of network participants of the fact that they had some relationship at a certain period of time in the past is affected by the present status of the relationship. The mix of past and present experiences conceals the dynamics of network evolution. On the account of such considerations, formal networks based on comprehensive documented data, if any is available, could be analysed and traced with certainty.

Perspective of social network analysis of participatory policy practice

From the perspective of a social network analysis, the analysis of policy networks is based on "canonical mechanisms that are employed in social network research" (Hollstein, 2011) including transmission (knowledge flow from policy actor to policy actor is an expression of prior similarities or a possibility to influence), adaptation (networking and ties influence homogeneity of an actor), binding (policy networks through bindings

could create new qualitative organisational entities with new attributes) and exclusion (a part of policy network actors are excluded in favour of other tightly connected policy actors). Having scrutinized the existing organisational practice of policy frameworks used to model policies, we can trace activities of temporary bodies under bureaucratic organisations including decision making groups, consensus building groups and other types of stakeholders formed with the purpose to inform policy decisions makers. Such groups are invoked intentionally by authorised politicians. Different stakeholders are invited along with policy administrators leading the process of small scale networking. From the theoretical perspective, the composition of such groups should correspond to an informal policy network that exists outside the policy arena. The extent of matching of the two networks (an informal network outside the bureaucratic organisation and a formal network of the participants of a temporary decision making group) could indicate the quality of the policy making environment recognising appropriate policy actors.

The social network analysis could serve as a measurement technique that helps to recognise the network boundaries and measure network characteristics (Freeman, 2004). Perceiving members of temporary organisational groups as nodes of a network and an act of participation in a group as a connection makes it possible to reconstruct the structure of the formal network. The social network analysis provides a quantitative description or a momentary picture of the present participation level. The list of characteristics including the size, density, centralisation metrics, hierarchy, and clustering coefficient of the network produces a solid evidence of the network structure and gives an impression about the participation level. Having explored the evolution of the stability of network metrics, we acquired an instrument for the analysis of participation dynamics and changes of attitudes of authorised institutions towards participation (Snijders et al., 2010). Dealing with networks of different sizes and interpreting characteristics of the social network analysis, it is necessary to take into account the fact that network parameters strongly depend on the network size (Anderson et al., 1999). Consequently, techniques of validation of different network characteristics could be applied. One of the possible validation procedures could be based on the comparison of the values of network metrics with metrics of other possible configuration or a theoretically generated network (Dunn & Westbrook, 2011).

3. Methodology

The methodology used to reconstruct the active formal policy network is based on the data which is fully documented whereas any qualitative data recruitment was intentionally left out. Although the qualitative data is not completely excluded from the scope of our observation, it has to be noted that such data have only been used for the purpose other than a mere reconstruction of the network. The qualitative data from semi-structural interviewees were collected with an intention to contextualise the network and add more relevance to the quantitative data extracted from formal documents and attain more individualisation of the network formation. More details could be found in other works of the authors (Mikulskiene & Pitrenaite, 2012; Pitrenaite & Mikulskiene, 2012). Nevertheless this issue is left out of the scope of the present research, which is devoted to the analysis of pure quantitative data attempting to demonstrate the added value of the social network analysis.

Data collection

Officially nominated decision groups are periodically set up by the ministry. The minister issues a decree for every individual decision group stating the task for the decision group, the time period for the task completion and the list of the decision group participants with their affiliations. Documents on the establishment of the decision group were kindly presented by officials of the Ministry. The available documents let us reconstruct the complete network of the policy actors without any uncertainties if the obtained documents are in a full set. The data about the groups comprise the date of the group establishment, the task allocated to the group, the sector whose benefit the group is going to work for and the period of time available to attain the solution. These data constitute an input for the social network analysis. All documents were presented in the form of a hard copy,

therefore digitalisation of the collected data was a labour intense work including a double checking procedure to avoid any mistyping. The digitalisation was carried out manually.

To trace the dynamics of participation, years 2007 and 2010 were chosen for the analysis intentionally since these periods correspond to the middle terms of the cadencies of Lithuania's governments when the governments operate in the most stable manner. The research input includes the following data: names, affiliations and occupations of the group members. This information lets us distinguish attributes of the additional policy actors including stakes of the group members that could speak on behalf of the sectors they represent, types and legal statuses of their organisations and their main administrative functions.

Data analysis

Decision groups officially nominated by the Ministry of Education and Science of Lithuania during 2007 and 2010 and the policy actors who participated in these groups were analysed by means of the social network analysis. Each participatory group is a part of a larger network that was active in 2007 and 2010. Names included into the network repeatedly give information about the way group members are selected. The substructure of the network is distinguished with the purpose to reconstruct hidden tendencies to recognize nodes as suitable policy members. The network analysis and network visualisation were processed by UCINET software (Borgatti et al., 2002). All participants included into ministerial decrees are considered to be nodes in the network. Group membership represents the ties. A two mode network (policy actors vs. the group) converted to a one mode network. However due to higher complexity of this network (every node in the group has ties with all other group members), the main analysis is based on a star like network, reconstructed in the following way. If a policy actor's name is included into the minister's decree, we consider that the tie between the chairman and the participant is directed from the chairman to the participant. No other ties between individual policy actors in the group are considered. The relations of the group members with the chairman are perceived as a hierarchical network with the nodes (participants) directly connected to the chairman and make a star shaped network with a single central core. To understand the role the policy actors are granted by the policy administrators, the following techniques were applied: in-out degrees, regions with principal components and k-cores (Hanneman and Riddle, 2011).

4. An overview of the typology of the policy actors

The overall research data set covers 162 temporary institutional arrangements and makes a network of 985 nodes with 1743 relationships that represent facts of individual participation in the total of the two analysed years. During 2007, 98 temporary institutional arrangements were created: 65 decision groups along with 28 commissions and 5 councils whereas in 2010, participatory groups were employed more than twice as less frequently. We have counted 64 applied participatory instruments employed in 2010 in total: 29 participatory groups, 25 commissions and 10 councils.

The tasks of the groups at the Ministry of Education and Science fully correspond to the political agenda of a certain moment of the political period in the policy domain of the ministry's competence. The tasks comprise policy issues on higher education, research and development, secondary education and informal education. Special attention is paid to the management of human resources (development of teachers' competences and the system of payment). Also, some groups deal with the ministry's internal administrative issues.

We begin our study with the classification of different policy actors in the network based on the actors' affiliations. Analysis of the dimensions of the group members has led towards three types of variables:

1. *Organisational representation* coincides with the main purpose and the main *brief* which a particular organisation contributes to the policy making (regulation, financing, service providers, advisory, independent, interest group representation (employees, employers, institutions, users, sectors)).

2. *Sectorial representation* corresponds to the sectors a particular organisation represents in the first place. Those sectorial representations are tightly connected with policy domains. The following sectors are distinguished: HEI, R&D, Environment, Energy, Finance, IT, Culture, Presidency, Government, Local authorities, Social wellbeing, the Media.
3. *Institutional/individual* representation is represented by two types of attributes either institutional (School, Hospital, University, NGO, Municipality, Regulatory Body) or individual (scientist, teacher, pupil, employee and etc.). Institutional representation makes an emphasis on the stakes that are significant for institutions whereas individual representation accounts for representation of individual actors that could be grouped. Regulatory bodies should be analysed as policy network managers whereas all other participants - as policy stakeholders.

Those variables are transformed into attributes of policy actors and applied to network analysis.

5. Results

The social network analysis makes it possible to analyse relations between nodes in the light of their position in the network, their institutional distribution by affiliations and their sectorial and administrative functional cooperation. The analysis has shown that out of 985 members of participatory instruments, the majority (707 out of 985) of the individuals were engaged into the governmental policy making process once during both periods. 148 individuals participated twice. There are 7 policy actors who have been involved in 15-18 participatory groups, 11 actors participated in 11-13 groups, 20 – in 7-10 groups and 92 – in 3-6 groups.

Multiple statistics

Multiple statistics has revealed the specific structure of the networks we are dealing with (Table 1). Although the absolute values of the multiple statistics are less relevant due to the way networks were constructed (star-like networks in respect to group leaders), the comparison of two networks parameters produce a valuable source of information in terms of network dynamics.

The way networks were build determine the value of network density that is quite and relatively low, whereas many other characteristics exhibit a discrepancy within stakeholder participation during the particular cadence of the government. Having reviewed the network characteristics (Table 1), we can say that the network of 2007 represents a relatively better environment for participation evidenced by many characteristics: the network diameter (larger for 2007), the number of nodes (more participants engaged in 2007) and the maximum k-core (more network regions could be traced in 2007). Let us now look at the clustering coefficient. The clustering coefficient for policy making during 2007 is more than twice as greater as in 2010 and could be an indication that more collaborative groups took part in policy making in 2007 than in 2010.

Table 1. Results of multiple statistics.

	Network of 2007	Network of 2010
No. of nodes	686	441
No. of links	1031	550
No. of groups analysed	96	64
Maximum k-core	5	3
Ave degree	1,35	1,15
Diameter	8	5
Density	0,19%	0,26%
Clustering	0,395	0.198
Geodesic distance	2,59	1.68

Maps of Networks

The networks were drawn by NetDraw with the spring-embedding representation. Having tracked the level of stakeholders' participation and measured their integration into the policy process, the network nodes were grouped according to the attribute of institutional/individual representation (Figure 1).

Distribution of participants according to the attribute of individuals/institutions has the same tendency in dynamics. Let us now analyse representation of the network of 2007. Two big groups of members could be recognized easily: the first is composed of the members that belong to the ministries and other regulatory bodies (640 links) and the second represents Universities, colleges and research institutes (232 links). The second important segment of the groups, although less represented in the network, is schools of any type of institutional representation (73 links) and businesses (57 links). All other remaining nodes correspond to other stakeholders whose participation seems to have an occasional nature. Such network representation goes in hand with the movement of evidence based policy (Head, 2010) however there is a lack of knowledge about the quality of the evidence used. Contrarily, there are reports by National Audit Office about vague use of research data at the governmental level. The observed participation of scientists could be interpreted as the fact that more participatory groups scrutinizing issues related to higher education and research were set up during the selected investigation period. However, we cannot prove it, since the statistics on the distribution of the group tasks demonstrates the same number of groups on education as on higher education institutions (HEI) (around 40 %) during both periods. A reliable interpretation of the highly concentrated participation of Universities is that policy administrators and politicians seek reasonable consultation and advice, while interest representation is left behind and remains secondary as to the significance in policy making.

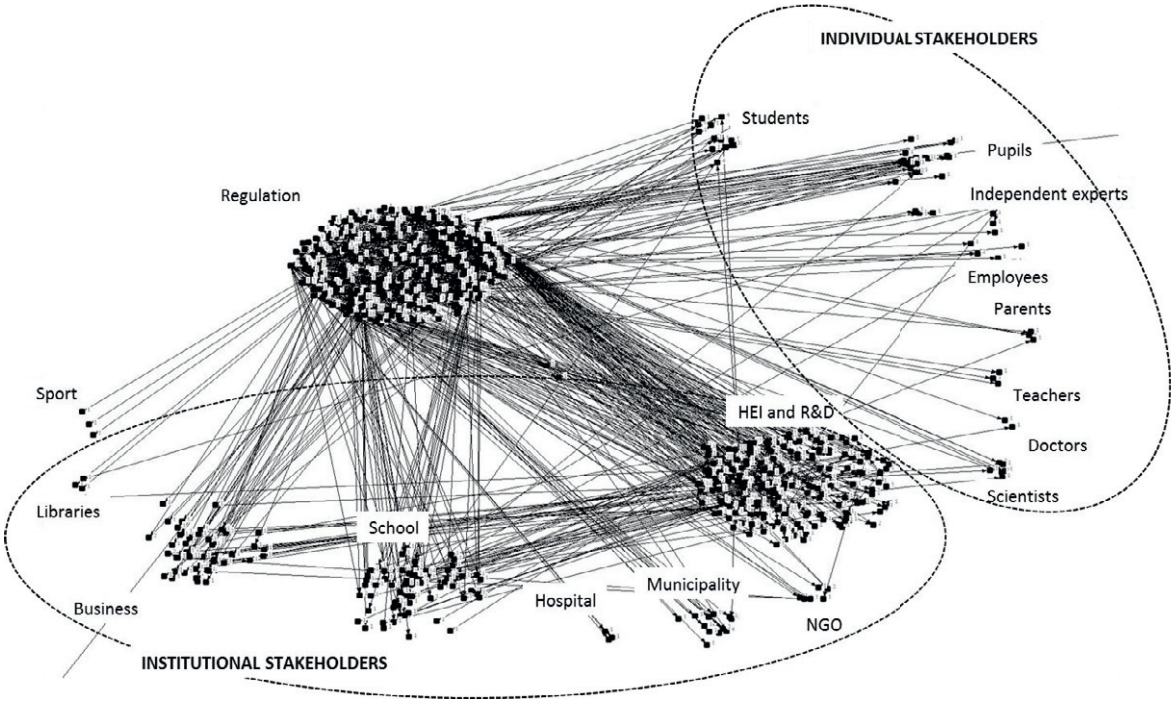

Fig. 1. Network of 2007 grouped by institutional/individual representation (abbreviations: NGO – non-governmental organisations, HEI – higher education institutions, R&D – research and development).

In-degree and out-degree

An out-degree is defined as a number of ties between nodes directed from the node and constitutes a characteristic of participatory group leaders in a star-like network. Other participants are characterized by an in-degree defined by the ties directed from other nodes. Interesting results are received from comparison of out-degrees for the two analysed years. The out-degree is almost 2.5 times greater in 2007 than in 2010 (Table 2). The difference could be explained by a larger diversity of group leaders across the network in comparison with the network of 2010. The 2007 network structure with a relatively significant out-degree is a sign of institutional self-confidence when the role of a group leader is granted to any administrator that holds an appointment with a certain level of responsibility what can hardly be said about the network of 2010, where only some nodes are granted the position of a chairman. That might be a sign of internal preferences for power distribution, when the power is distributed on the bases of merits other than competences and this aspect needs to be investigated closer. To justify this presumption, principal components were drawn.

Table 2. Networks centrality.

	2007	2010
Out-degree	3.991 %	9.397%
In-degree	0,307%	0.513%

An in-degree reflects attitudes of authorised policy makers towards external policy actors, mostly stakeholders. Public administrators from the lowest organisational level (corresponding to specialists) fall to the same area of the network as other stakeholders. No meaningful differences are traced from in-degree measurements in both networks. The low in-degree could demonstrate that both networks consist of nodes that were invited to participate just once.

Analysis of principal components

The standard analysis of principal components lets us estimate the distance between the nodes, extract the cluster structure in the graphs and identify similarities and differences of the nodes. The hub of the nodes can also be observed. The results of the analysis of principal components are presented in Figure 2 and Figure 3 for the years 2007 and 2010 respectively.

Representation of the principal components clearly demonstrates interaction between three groups of participants, according to their occupation: political level, administrative level and an external stakeholder level. Not surprisingly political representatives have leading roles in both networks. Meanwhile, other network members having roles of external stakeholders are non-ministerial policy actors and have peripheral positions among the politicians. Network patterns clearly prove the hypothesis of uncertain roles of external stakeholders.

In the network of 2010, two intermediary administration levels (level 1 corresponds to executives, level 2 corresponds to intermediate heads of divisions and other administrators) overlapping with the stakeholder input could be clearly traced. The representation networks fully correspond to the organisational structure the Ministry maintains with attached external stakeholders. In the network of 2007, individual organisational levels can be easily traced, what indicates that all institutional policy administrators are equally treated according to their competences and positions and their integration into the policy making groups is productively used by the organisational structure.

The fact that the roles in the network strongly depend on the occupational position in the hierarchy of the Ministry (a higher occupation position determines a higher degree) can lead to a presumption that either the administrated positions are occupied according to the competences or the administrative positions are highly respected. The situation is different in 2010 where no clear organisational structure can be traced in the network structure. As a consequence, an intermediate administration level is absent in the network. It seems that the

lowest public administrators along with some executives from the intermediary administrative level are substituted by politically delegated members. The main hub consists of only politically appointed participants (political advisors and vice-ministers). Meanwhile, the stakeholders are granted peripheral roles in both networks; only the absolute values of their participation are lesser in 2010.

Interesting aspects reveal from the comparison of principal components of the representation graphs with node affiliations and the group typology corresponding to the policy topics (Figure 4). The policy sectors of research and education are isolated from each other or separated by strongly determined policy actors. No common participant can be traced except for the vice-minister. Such result is not equally evident traceable in the network of 2010, probably because the number of groups was relatively lower.

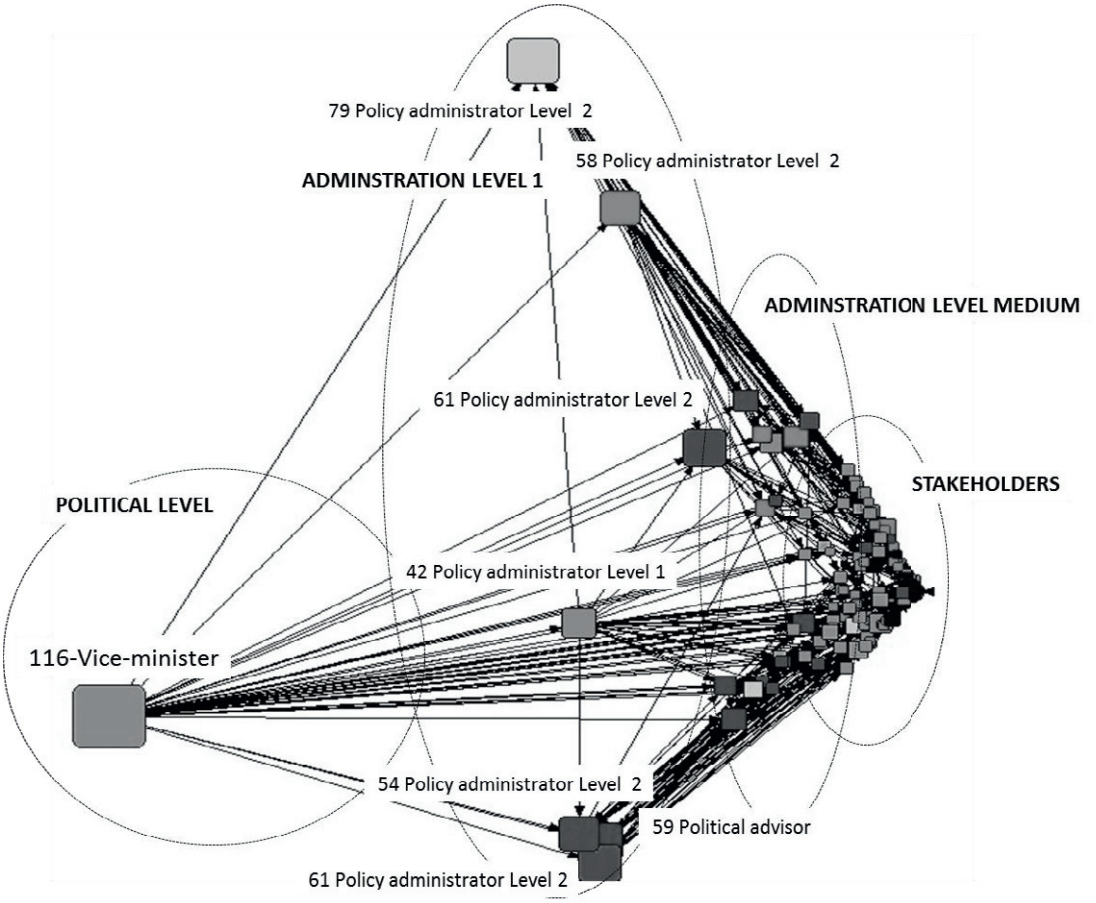

Fig. 2. Network represented by principal components of 2007.

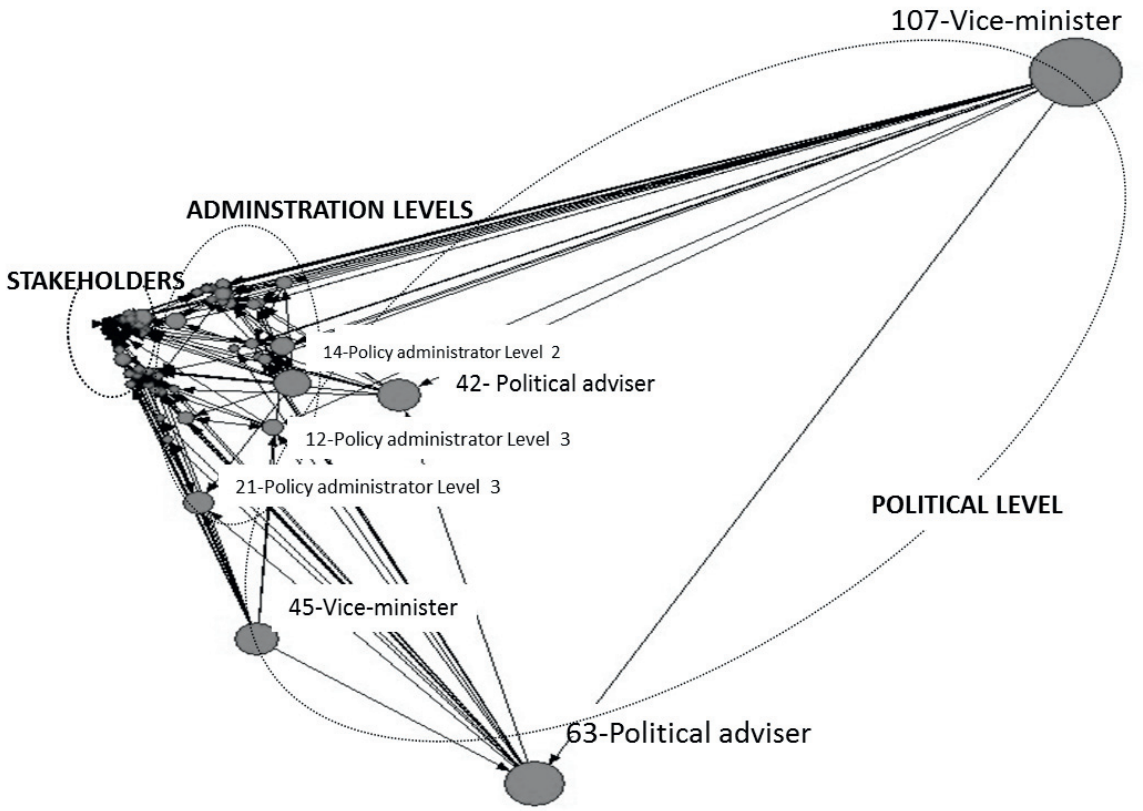

Fig. 3. Network represented by principal components of 2010.

K-cores

K-core represents groups of actors that are strongly interconnected. The k-core analysis supports the idea that the role of the intermediate level of administration is clearly recognised in the network of 2007, which is not the case in the network of 2010 (Table 3).

Quite interesting results may be drawn from the study of k-cores: the most prominent members are civil servants of political confidence and there are only five such nodes in the network of 2010 whereas the number of recognisable representatives present on the scene in 2007 is substantially greater. Moreover, the maximum k-core in the network of 2007 consists of politicians and policy administrators of the first level whereas in the network of 2010, only politicians constitute the maximum k-core.

The k-core analysis supports the idea that the role of the intermediate administrative level in the network of 2007 is significantly recognised, what cannot be said about the network of 2010 (Table 3). That could evidence more advanced group participation in 2007 than in 2010.

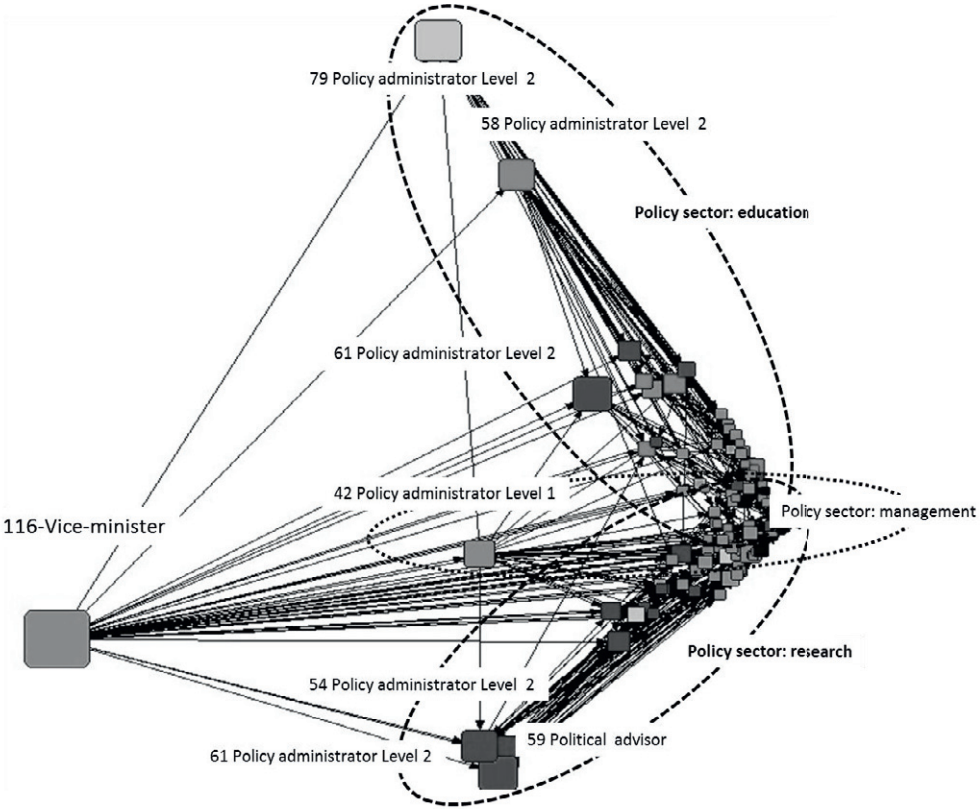

Fig. 4. Network represented by principal components of 2007 with the assignment of policy domain, analysed in the groups.

Table 3. Percentage of members of maximum and minimum k-core.

Year	Maximum k-core	Members in maximum k-core	Members in minimum k-core
2007	5	4%	75%
2010	3	5%	85%

6. Discussion

Participatory groups are employed during every cycle of policy modelling at the operational policy making level without references to the ruling political parties. However the internal practice of grouping and stake representation varies slightly and has been evidenced by the network structure analysis. The two analysed networks represent two different political periods: the network of 2007 represents the period when the Minister of Education and Science was a social democrat and the network of 2010 represents the period when the Ministry was led by liberals (Liberal movement). Nevertheless we intentionally leave behind discussions on possible political issues of the preferable participatory practice of a particular political party since more evidence is needed to make reasonable conclusions. Instead, we would like to prove our findings from the managerial point of view. Analysis of the two networks starts from the comparison of the network sizes. The size of the network is

represented by the number of policy actors involved in the group activities. Concurrently, the number of policy actors and the number of ties strongly depend on the presence of active groups. Specifically, the number of such groups decreases in 2010, while the average sizes of groups are comparable and vary from 4 to 30 participants per group. Seeking to answer the question what the main reason of the reduction in the number of groups is, we arrive at a presumption that either informal communication could have been eliminated or decisions were made using an administrative structure. Having in mind that informal communication is always present, we can assume that informal communication improved in its value and power in 2010. However, interviews with public administrators revealed no confirmation of the fact. The lesser number of groups goes in hand with the reduced extent of the participation of external stakeholders and surprisingly excludes participation of the intermediate administrative level (see results of the principal components analysis).

While the reduced number of participatory groups is evidenced by the size of the networks is the point of concern, the changes in network structures gives us complementary evidences about the attitudes of policy makers towards participation. The network evolution and changes in the hierarchy, when the power is distributed only among politicians (observed in 2010) can be explained by the reform of public administration that took place in 2008. The main point of the reform was to strengthen political influence of Ministries via elimination of the higher administrative level corresponding to the Secretary of the Ministry. Duties of secretaries were delegated to vice-ministers. Other administrative levels were not affected directly by the reform. The reform was started partly because of the new politicians who came to power in 2008 after 8 years in opposition and partly because of limitations in the existing practise of the administrative system. We have tried to sketch the hierarchy of the organisational structure before and after the reform of 2008 and establish its links with the principal components of the network (see Figure 5). The main difference of the network structures manifests in lesser representation of public administrators of any level and greater concentration of power in the hands of politicians in 2007 compared to those in 2010. Despite the fact that two vice-ministers in the network of 2010 occupy the same hierarchical level, their positions in the network differ dramatically. The vice minister with the degree of 107 is leading all decision making groups, while another vice minister with the degree of 45 shares his responsibility with a policy adviser with the degree of 63. In 2010, the higher political concentration eliminates other public administrators: only some names from the whole list of available public executives and other managers are traceable and no names from the pool of specialists are present.

Such situation is meaningful seeking positive and significant political responsibility on the one hand: the network of 2010 is less hierarchical, the power is more evenly distributed, but the hub is concentrated in the branch of political representation. On the other hand, avoidance of institutional public administrators in policy management preconditioned a gap in the flow of organisational knowledge. From the perspective of organisational learning, the pattern of the network of 2007 is more progressive as knowledge accumulation plays here: stakeholder and lower administration levels are mixed and share the equally important role. That determines dissemination and acquisition of knowledge generated in a discussion group during the policy cycle. Also, tacit knowledge about the practice of making political decisions and discussions that took place but remained outside the adopted decisions could be naturally transferred to other policy cycles when new politicians and new stakeholders are involved.

The fact that the structure of the network of participatory groups changed during the new policy cycle, demonstrates sensitivity of participatory arrangements to the political framework. The fact is naturally understandable, however a wider participation of the public and stakes has to be clearly determined, monitored and safeguarded from any occasional intervention as an undocumented and ill-defined practice of group formation is unacceptable for an institution that operates in a democratic system.

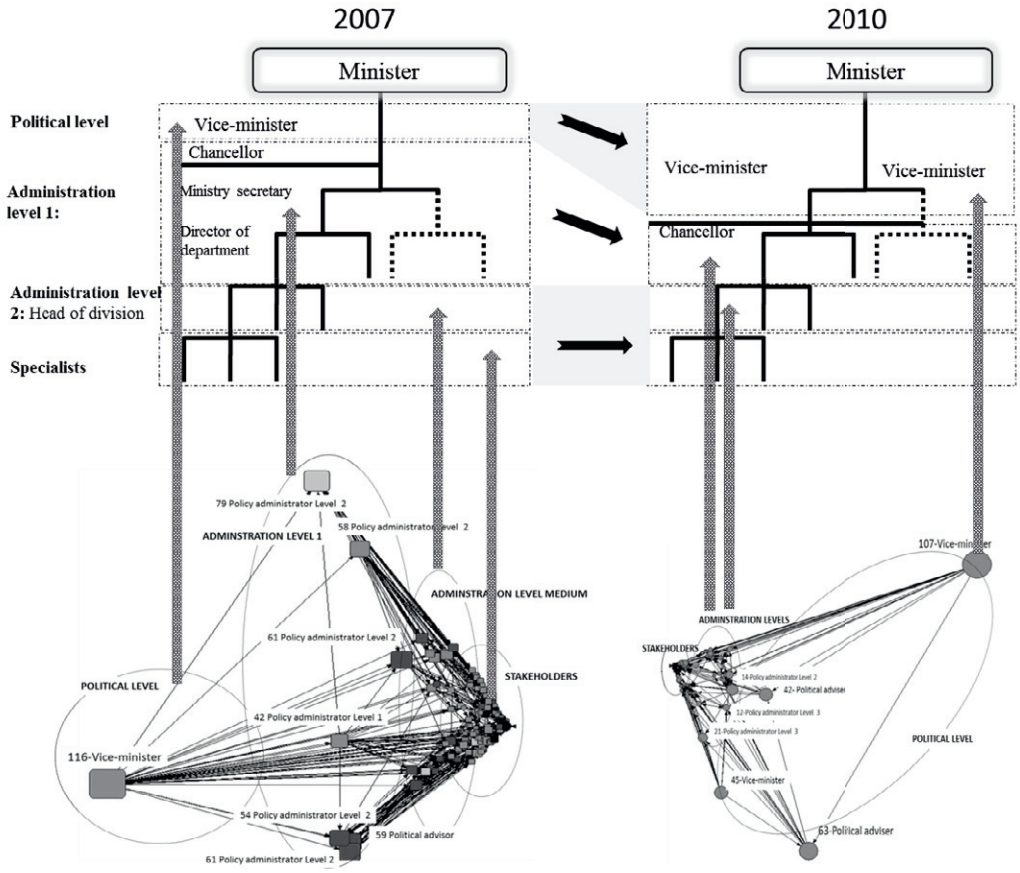

Fig. 5. Matching networks and ministerial organisational structures represented by principal components.

7. Conclusions

This investigation is the first attempt to measure the extent of stakeholder participation on the governmental level and shed some light on the policy processes that are rarely documented. Knowledge about practices of participatory groups and their impact on a policy making framework sustain the requirements for a democratic policy. Also that knowledge could serve as a background for a desirable participatory level and draw the trends of the development of public administration and organisational structures.

The social network analysis of stakeholder participation in problem solution processes lets us evaluate the practice of participatory policy. The research has revealed that the organisational structure is reflected in the network structure. Among the challenges for the governance of a policy network, the most important one is the conversion of the existing framework of policy modelling based on expert knowledge into an organisational framework based on interest knowledge and supported participation.

However, empirical studies of the evolution of network characteristics in the groups exhibit a low level of interest representation and high willingness to acquire expertise instead. Undeniably, the network dynamics has

unfolded that political participation of policy administrators and stakeholders was broader in 2010 while political responsibility was wider shared with public administrators and stakeholders in 2007.

The tendencies when actors appointed according to their political confidence acquire prominent and dominating positions in stake representation give reasonable grounds for concerns about the decline in the development of the participatory policy. A framework based on "soft managerial" rules to boost the participation of policy actors and certain efforts to recognise interests and their connectivity within the network has to be conceptualised. The equilibrium between dominant policy actors with prominent abilities of interest representation and stakes that are not expressed and conceptualized constitutes a second challenge that needs to be addressed by designing such organisational framework.

Acknowledgements

This research was funded by a grant (No. MIP-109/2011) from the Research Council of Lithuania.

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